June 2002 Monthly Progress Report

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Curator: *Natalie Jaquith*
Responsible Official: *Dr. Joseph H. King, Code 633*
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Task Assignment 99-001-00
June 2002

MANAGEMENT
GSFC ATR - Dr. J. Green
Raytheon ITSS Task Leader - L. Mayo
Raytheon ITSS Group Manager - L. Mayo

TASK OBJECTIVE: The non-personal services required under this task include performing all necessary functions to manage Raytheon ITSS contract staff supporting the Space Science Data Operations Office (SSDOO). The Raytheon ITSS management team will meet with the SSDOO management team to discuss significant events and contract highlights to be presented to upper management and Headquarters, and current contract issues and concerns.

SIGNIFICANT EVENTS:

- Staff made DCE presentation to Government. Finalized decision to continue renting DCE with some memory and hard disk upgrades.
- Staff held corporate strategy meeting to resolve CLIN overrun issue.
- Staff made PEB presentation. Received LOE Award Fee score.
- Staff made Raytheon 6-sigma presentation to code 630.
- Staff held weekly senior staff meetings.

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Curator: *Natalie Jaquith*
Responsible Official: *Dr. Joseph H. King, Code 633*
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Task Assignment 99-003-00
June 2002

ASTROPHYSICS MISSION SUPPORT SERVICES
GSFC ATR - Dr. N. Gehrels
Raytheon ITSS Task Leader - Dr. J. F. Cooper
Raytheon ITSS Group Manager

TASK OBJECTIVE: This task provides support and consultation services for the Compton Gamma Ray Observatory (CGRO) project scientist in areas of data management, analysis, and archiving for CGRP and for the HIC experiment on the Galileo spacecraft. This support includes attending GRO Science Working Group meetings, aiding target-of-opportunity decisions, monitoring the health of the spacecraft, and presenting GRO papers at scientific meetings. In addition, this task will provide consultation on data products from the HIC.

SIGNIFICANT EVENTS:

- The Task Leader presented a review talk on jovian magnetospheric interactions with, and radiolytic processing of, surface material on the Galilean satellites at the Eurjove meeting in Lisbon, Portugal.

- K. Khurana (UCLA) provided advice on correction of the UCLA Alfven Wing model code for applications to modeling of Galileo Orbiter magnetic field and Heavy Ion Counter data at Io and Europa.

- The Task Leader corresponded with R. B. McKibben (University of Chicago) and E.C. Sittler (Code 692) on Titan Orbiter Aerorover Mission (TOAM) requirements for cosmic ray instruments and problems due to radiation background from the Radioisotope Thermal Generator (RTG) power source on the balloon aerorover.

- Task staff reviewed EGRET files R17042659-94.

UPCOMING MILESTONES/EVENTS:

- A research paper on HIC data analysis and modeling for the Galileo Orbiter flybys of Io is to be completed within the next few months.

- A report on the Task Leader's Europa decadal survey study will be presented at the Magnetospheres of the Outer Planets meeting in July at APL/JHU and will be published shortly in a book from the Astronomical Society of the Pacific.

RELATIONS TO OTHER TASKS:

- Work on this task is being supplemented by support from the SSDOO project and the two active Jovian System Data Analysis Program contracts with Raytheon ITSS. Funding from another contract on radiolytic chemistry modeling for Europa from the NASA Planetary Atmospheres Program is expected to begin later this year.

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Responsible Official: *Dr. Joseph H. King, Code 633*
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Task Assignment 99-101-00
June 2002

AMASE-MOCHA-CONCAT DEVELOPMENT
GSFC ATR - Dr. C. Cheung
Raytheon ITSS Task Leader - E. Shaya
Raytheon ITSS Group Manager -

TASK OBJECTIVE: This task provides support for the development of the object -oriented data base multispectral astrophysics data catalog, AMASE (Astrophysics Multimission Archive Search Engine) as an interface to NASA's astrophysics data holdings. This effort is a collaborative one with the University of Maryland (UMD) Computer Science Department, and frequent interactions with UMD counterparts are expected. The general goal for this performance period is to develop the AM ASE prototype into an astronomical search and discovery engine by expanding the data contents and augmenting the search capabilities. Work includes incorporating astrophysics data from other wavelength bands to complete the electromagnetic spectrum and developing procedures to access remote relational data bases.

SIGNIFICANT EVENTS:

A. DSA:

1. Staff attended bi-weekly DSA meetings and weekly DAPFA meetings.
2. Staff worked on XML telemetry language for OMG RFP.
3. Staff attended Space Domain task workshop at OMG meeting in Orlando, Florida.
4. Staff took on responsibility of maintaining master copy (in CVS) of integrated responses to OMG Space Domain RFP1.
5. Staff worked on DSA DAPFA summary slides.

B. DSE:

1. Staff attended general DSE weekly meetings.
2. Staff attended DSE demonstration weekly meetings.
3. Staff began to implement a checksum scheme for data transfered through sockets.
4. Staff worked on SITB to ensure compatibility with FFTB.

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Task Assignment 99-102-00
June 2002

ADC
GSFC ATR - Dr. C. Cheung
Raytheon ITSS Task Leader - J. Gass
Raytheon ITSS Group Manager - _ _ . __ _ .

TASK OBJECTIVE: This task operates the Astronomical Data Center, develops multispectral astrophysical metadata interfaces, and provides FITS data format support for the SSDOO.

SIGNIFICANT EVENTS:

- Staff acquired three USNO Double Star catalogs; the WDS 2001.0, 5th Catalog of Orbits of Visual Binary Stars and the Delta-m catalog.

- Staff processed the Delta-m catalog for distribution. Several data inconsistencies were discovered during processing, the author has been contacted for clarification.

- Staff generated formatted list for ADS abstract links to ADC.

- Staff answered six science/technical questions.

- Staff continued work on converting legacy datasets to XML, processing 32 catalogs and three journal tables to XML using the legacy pipeline.

- Task personnel updated the XSLT that generates HTML descriptions from the XML documents to include descriptions and links to FITS tables.

- Staff corrected units: factor validation errors in 30 datasets.

- Raytheon presented posters at the AAS meeting in Albuquerque, including one on the Astro Data educational Web site on adc.

- Task personnel met with NED personnel at the AAS meeting to discuss their possible use of XML technologies.

- Staff updated several Web pages.

UPCOMING PLANS/EVENTS/MILESTONES:

- Staff will continue working on the conversion of legacy dataset files to XML, and will continue validation of legacy datasets converted to XML.

- Raytheon will modify selected ADC Web pages to provide better access to the available XML-based archive and XML-based services.

- Staff will produce a tag-delimited database containing information about ADC's repository datasets that are not directly related to specific article in the ADS.

- Raytheon will determine what needs to be done to ADC Web pages into compliance with Section 508 guidelines.

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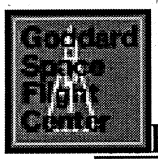

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Curator: *Natalie Jaquith*
Responsible Official: *Dr. Joseph H. King, Code 633*
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Task Assignment 99-104-00
June 2002

INFRARED/SUBMILLIMETER/RADIO ASTROPHYSICS DATA MANAGEMENT
GSFC ATR - Dr. D. Leisawitz
Raytheon ITSS Task Leader -
Raytheon ITSS Group Manager -

TASK OBJECTIVE: The contractor shall perform the following tasks applicable to each of the NASA astrophysics missions, COBE, IRAS, SWAS, MAP, ISO, SOFIA, MSX, WIRE, SIRTF, 2MASS, and possibly others identified by the government: Planning and Communication, Interactions with Projects, Improving Data Management Processes, Data Processing, Data Archiving and Archive Quality Assurance, Archival Research Support, Miscellaneous, and General Guidelines (as given in the detailed task description).

SIGNIFICANT EVENTS: Staff supported NASA Astrophysics Data centers Executive Council (ADEC) discussions that involved Code 631 activities. In particular, staff attended the ADCCC/ADEC Meeting that was held at the AAS meeting in Albuquerque, New Mexico on June 5, 2002.

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Task Assignment 99-110-00
June 2002

AUTONOMOUS TECHNOLOGY
GSFC ATR - Dr. M. E. Van Steenberg
Raytheon ITSS Task Leader - R. Dunlap
Raytheon ITSS Group Manager ·

TASK OBJECTIVE: The objective of this task is to support the development of a simulation environment that supports autonomous distributed spacecraft control and test science collection techniques using artificial intelligence (AI) technologies. This work is in collaboration with the GSFC's Guidance, Navigation and Control Center and JPL's Automation and Control group. The contractor shall support the following activities and contribute to reports and white papers as appropriate: (a) evaluate Science Quick-Look Analysis Tools (e.g., HEASARC) for use as on-board analysis tools, (b) define Typical Science-Driven Maneuver Automation Requirements, (c) define Typical Science Automation Requirements, (d) define Basic System Architecture, and (e) develop rapidly a prototype to demonstrate key capabilities.

SIGNIFICANT EVENTS: No work was performed on this task during the reporting period.

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Responsible Official: *Dr. Joseph H. King, Code 633*
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Task Assignment 99-113-00
June 2002

GLAST
GSFC ATR - R. Fink
Raytheon ITSS Task Leader - J. Palencia
Raytheon ITSS Group Manager

TASK OBJECTIVE: GLAST is a multipartner gamma-ray survey mission with a GO observation component. The ADF will provide a prototype public archive design using Beowulf and other related technology. The prototype will implement the archive design using the Compton Gamma Ray Observatory EGRET data set. The contractor shall provide personnel to support the following tasks: (1) systems administration support of the Beowulf cluster and (2) programming support as requested for implementing the archive prototype.

SIGNIFICANT EVENTS:

- Staff reviewed the specs of the 518-Processor THUNDERHEAD Cluster to be submitted to NASA Procurement.
- Staff researched alternative hardware for THUNDERHEAD for NASA buyer options.
- Staff reviewed and finalized the specs of the 154-Processor Code 600 Cluster to be submitted to NASA Procurement.
- Staff finalized the hardware specs for vendors of the 12-Processor SIMDOG Cluster to be submitted to Raytheon procurement.
- Staff assisted in the system administration of the Linux workstations for the Summer HPC/VSEP guests & students.
- Staff provided system administration support of HPC's Beowulf Clusters (MEDUSA, PIVOT, ORKA).
- Staff provided system administration support of MEDUSA 18 Linux Workstations.
- Staff provided system administration support of BECKER Beowulf Cluster.

UPCOMING MILESTONES/EVENTS:

- Staff will attend the summer school for High Performance Computing.
- Staff continues the upgrade HPC's Beowulf Clusters (Topaz, Hive1).
- Staff plans the configuration setup for the Code 600 75-node cluster.

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Task Assignment 99-115-00
June 2002

SWIFT
GSFC ATR - Dr. R. Pisarski
Raytheon ITSS Task Leader - Dr. E. Pier
Raytheon ITSS Group Manager - _

TASK OBJECTIVE: Swift is a multipartner gamma-ray burst detection and follow-up observation mission. The Astrophysics Data Facility (ADF) will provide science data processing pipeline design, development, and operations. In addition, the ADF will be responsible for providing Quicklook processing to the Swift Mission Operations Center (MOC) at Pennsylvania State University (PSU). The final outputs of the pipeline processing will be delivered to the HEASARC at GSFC and to project partners in England and Italy.

SIGNIFICANT EVENTS:

- Staff guided civil servant programmer in modifying the imagexform tool to fit into the HEAdas package.
- Staff finalized basic system for MOC->SDC dat transfers and tested them with the MOC.
- After discussion with the rest of the project, decided that the SDC will strip the 12 byte ITOS headers off the CCSDS packets we receive before processing.
- Staff wrote a tool to detect the presence of the ITOS headers and to strip them off, and integrated these tools into the telemetry ingest scripts.
- Staff continued the network performance test with Leicester, UK.
- Staff created demo versions of the XRT and UVOT teldef calibration files.
- Staff worked with the XRT and UVOT software teams as they tested the teldef files.
- Staff met with Julian Osborne to discuss the involvement of the UKDC archive at Leicester.

UPCOMING MILESTONES/EVENTS:

- Staff will write a general script for converting a true ITOS database into a set of Xing telemetry browser configuration files.
- Staff will continue to work with the instrument software teams on the coordinate transform software.
- Staff will continue work on DLT telemetry archiving system, as time permits.

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Task Assignment 99-201-00
June 2002

IMAGE
GSFC ATR - R. Burley
Raytheon ITSS Task Leader - C. Klipsch
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The objectives of the IMAGE Mission Data System task are to develop, test, and maintain the IMAGE Web data access and display system, the IMAGE data processing system, and the IMAGE data distribution system.

SIGNIFICANT EVENTS:

- Staff continued adding "alt" tags to files to meet section 508 requirements.
- Staff uploaded D. Stern's new html files.
- Staff modified perl script to create index files for files in the scripts directory.
- Staff started fixing non-displaying gifs on D. Stern's ISTP Web pages.
- Staff fixed non-displaying gifs on new POLAR Web page.
- Staff revised contact.html Web page.
- Staff fixed nearly all 508 compliance issues of the SMOC Web site, and completed preliminary testing via automated processes. Further tests are still pending.

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Task Assignment 99-202-00
June 2002

MAGNETOSPHERIC MODELING AND ANALYSIS
GSFC ATR - Dr. S. Fung
Raytheon ITSS Task Leader - Dr. L. Tan
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: This task calls for (1) the performance of analysis supporting the development of a new generation of trapped radiation, (2) the documentation and analysis support in an ongoing SSDOO research program on the outer magnetosphere, and (3) ISTP campaign coordination.

SIGNIFICANT EVENTS:

- A poster entitled "Development of a new trapped radiation data base for the NASA Living With A Star (LWS) program" (authors: S. F. Fung et al.) was presented in the 2002 AGU Spring Meeting held in Washington, D.C., on May 28-31, 2002. From the feedback in the meeting task staffs worked for preparing the data flow chart of the new-generation trapped radiation database.

- In addition, task staffs began to examine the format of OMNIWeb data files in order to input the solar wind and interplanetary magnetic field data into the trapped radiation database. Also, a draft of the "uniformizing" data format of the trapped particle database was prepared.

- A poster entitled "CRRES observations of rapid relativistic electron flux increases during intense isolated substorms" (authors: L. C. Tan and S. F. Fung) was presented in the 2002 AGU Spring Meeting. The poster attracted quite attention in the meeting. A manuscript to present the findings in the poster is preparing.

- Task staff further collected more events of relativistic electron flux enhancements from the CRRES MEA dataset and the CRRES magnetic field data posted in the Boston University web server. The emphasis of the investigation was to examine the possible correlation of flux enhancements with the polarity of the local magnetic field.

UPCOMING MILESTONES/EVENTS: Task staffs have been preparing the material to be included in the talk entitled "Development of a magnetospheric state-based trapped radiation data base" (authors: S. F. Fung et al.) to be presented in the 34th COSPAR Scientific Assembly, to be held in Houston, Texas, on October 10-19, 2002.

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Task Assignment 99-203-00
June 2002

SPACE SCIENCE VISUALIZATION FACILITY
GSFC ATR - Dr. R. Kessel
Raytheon ITSS Task Leader - J. Friedlander
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The task of the Space Science Visualization Facility within the SSDOO is to support the SSDOO education and outreach activities, scientific analyses, and IMAGE mission activities. Members of the facility will need to work closely with the space science community in order to create appropriate space science videos, illustrations, and displays and to develop overall approaches and procedures for the maintenance of the task.

SIGNIFICANT EVENTS:

1. Staff illustrated six figures for the Space Science Data Operations Office (SSDOO) Chief for an upcoming publication.

2.Staff updated and resized the CDAWeb/SSCWeb poster presented at the American Geophysical Union (AGU) Conference and replaced last years poster for display in the SSDOO hall of posters. Revised and updated SSDOO 2001 Overview. Updated the publications list and Kudos list. Updated the four charts in the Code 632 Space Physics Data Facility (SPDF) section.

3. Staff revised 3-D modeled instrumentation on the Cluster spacecraft for an upcoming animation for Code 632, Space Physics Data Facility (SPDF).

4. Staff made contact with a professor at Bowie State University, on how to visualize the CCM data files. We have jointly come up with a preliminary technique on creating 3-D models and animations from this type of data. The technique involves using edge detection masks and kernals plus polygon mesh creation techniques. Also made contact with an individual working at Liquid Dream Solutions who has developed a Distributive net rendering software that can replace screamer-net. He is offered and I have accepted to be a beta tester for the OS X version.

5. Staff is currently working on surface reconstruction from coordinate triple data used to model energy shells from previously created data points. Final model will contain 14 levels of field lines to be used in magnetospheric renderings.

6. Staff configured and re-rendered two previously made movie clips in HDTV using Screamer-NET. Eight nodes were running to reduce rendering time significantly.

7. Staff began work on transitioning rendered frames into mp2 hdtv movies to be mounted on HDTV server for presentation.

8. Staff began work on a display to be set up at the "Celebrate Goddard Day". The display will represent the Space Sciences Directorate diverse work force. Several meetings were held and three preliminary posters were discussed.

9. Staff returned to work on digitizing over 20 hours of space internet workshop video. VHS tape was transferred to digital tape to be placed on server.

10. Staff assisted SOHO/ESA group with printing and mounting 40 posters for a "Sun as Art" display for the GSFC visitor center and building 3 hallway.

UPCOMING MILESTONES/EVENTS:

1. Staff will complete Goddard Day Display for SSD.

2. Staff will prepare several new videos for HDTV server.

3. Staff will begin Auroral Studies Video for LWS coopertive program.

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Task Assignment 99-204-00
June 2002

SPACE PHYSICS SOFTWARE DEVELOPMENT, SYSTEM MAINTENANCE, AND SPECIAL PROJECTS
GSFC ATR - Dr. R. McGuire
Raytheon ITSS Task Leader - T. Kovalick
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The objectives of the space physics development task are to design, develop, document, support, and promote the re-engineering of the SSC Software Systems and the CDAW Graphics Systems. These software systems will support Satellite Situation Center (SSC) Operations, ISTP SPOF, SPDS, STEP, other NASA projects, and the space physics community in general. Accomplishing this objective requires maintenance of the software in both a UNIX and VMS environment, use of appropriate software development tools and methods, development of concise documentation, definition of new magnetospheric field and region models, and communication with scientists and end users both at the NSSDC and in the larger space physics community to ensure that their needs and requirements are being met. This task will work closely with the CDF/graphics task to fulfill its responsibilities. CRUSO in particular will play an important user support role for both SSC and the CDAW Graphics System. It will serve as the first point of contact for users, distribute documentation, answer simple questions, and forward software and science questions to this task and to SSC Operations.

SIGNIFICANT EVENTS:

1. Work on CDAWeb Software: Staff continued testing and modifying the Web pages and/or cgi scripts in order to make them Section 508 compliant. Staff continued investigating the geographic registration problem long suspected by staff and recently reported by a user of the Polar UVI/VIS image data. Staff modified the apache Web server configuration so that user's machine types will be recorded; this change necessitated a change to the web server log file statistics generation software.

2. CDAWeb Design work: Staff continued thinking about the various requirements and is formulating an approach.

3. Work on SSCWeb Software: Staff continued testing and modifying the html and cgi scripts so that the SSCWeb applications will be Section 508 compliant. Staff successfully integrated new bowshock distance calculation software into the Locator program. Staff continued to debug and correct the "use observer Kp values" Locator problem. The port of the SSCWeb software to the new server (ubatuba) took just a few hours; comparison testing to make sure the programs results are accurate will continue. Staff continue to pursue finding the cause of the calculator serlvlet problem and fixing it.

4. CDAWeb Statistics: The statistics include GSFC, RAL and EDC (not ISAS): CDAWeb fulfilled 8,421 plotting requests, 1,875 ASCII listing requests and 290 CDF delivery requests, where each request can contain more than one plot/listing/file; (RAL: 76, 7, 2) and (EDC: 43, 1, 2); there were 121,773 total accesses to the rumba CDAWeb HTTP Server. The anonymous ftp site delivered 96,255 CDF files and 262 software/document files to non-staff users. The "overall" ftp statistics file was updated and can be found at http://cdaweb/cdaweb/logs/FTPaccumulative_record.html. The monthly Web server and ftp

statistics files can be found at http://cdaweb/cdaweb/logs. The Web server statistics now include several additional reports, including: "Operating System Report" and "Browser Report".

5. SSC Statistics: Usage statistics from WHARFRAT, are as follows: There were 46 accesses of the SSC Version 3.0 Main Menu; Locator was executed 5 times; Query was executed five times; the Data Base listing was not accessed; the Calculator was not accessed; the File Output option of the system was executed 43 times and the FTP option was executed 29 times.

6. Usage statistics for the Web-based versions of SSC Query and SSC Locator programs are as follows: The query_server was executed a total of 156 times; the tabular_server was executed a total of 745 times; the graphical_server was executed 1,397 times for a total of 2,298 accesses, excluding developers. In addition, the SPOF accessed the systems 10 times; SSC Operations staff accessed the systems 17 times. The SSC Web pages (main page as well as any GIF, user's guide, etc.) were accessed 8,354 times, with 35 accesses by SPOF staff and 55 accesses by SSC Operations staff.

7. Mirror Sites: RAL and EDC are retrieving their provided data and software updates on a regular basis through their FTP accounts. The ISAS/DARTS site has been lagging behind with their pickups and has caused disk space problems, but a work around was implemented in a timely fashion. Usage statistics were received from two of the three sites this month; these numbers were incorporated into the CDAWeb statistics listed above.

8. The CDAWeb metadata generator and inventory plot generation software are being executed nightly. As part of this process, any new MAP, IMAGE, LANL, GOES, ACE and Cluster files are being "ingested" as well. The FAST data provider did access his account, but thus far has just sent us one data file. We received more Wind high resolution SWE data, but the data files all contain bad records at the end of each file, so the data provider has agreed to regenerate the files. An ingest account was also established for the Polar Hydra data provider, test files were received, sample plots were generated for him and he is preparing to begin daily delivery of files. In addition, the master cdf "notes" web pages were updated each week.

9. PWG software re engineering effort: Staff wrote software to recursively descend a directory tree structure and automatically create the appropriate index.html file in each directory. This software was needed on the ISTP/SPOF web site on the NSSDC machine.

10. New SPDF web site : Staff have tested the site. A few more problems need to be corrected.

UPCOMING MILESTONES/EVENTS:

1. Staff will assist the ATR with providing documentation and the appropriate level of information to help define meaningful assignments for a new co-op. student.

2. Staff will assess the CDAWeb and SSCWeb pages for Section 508 Web Accessibility compliance and report findings to the government web development coordinator for the NSSDC.

3. Staff will continue to work with the IMAGE project personnel and develop the appropriate software to be able to display the best "views" of the IMAGE data through CDAWeb.

4. Staff will continue testing and maintenance on CDAWeb and testing/enhancing all of the plotting and listing software.

5. Staff will continue testing, modifying, and documenting the CDAWlib software and associated Web pages.

6. Staff will continue investigating making 3-D orbit plots available through the SSCWEb system.

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Task Assignment 99-205-00
June 2002

SPACE PHYSICS DATA ACQUISITION AND VALUE-ADDED SERVICES
GSFC ATR - Dr. R. McGuire
Raytheon ITSS Task Leader - Dr. H. Hills
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The objectives of this task are four-fold: 1. to support space physics and information acquisition for NSSDC, including support for ingest to the near-line/on-line archive and/or for distribution as CD-ROMs; 2. to support value-added space physics services, including operation of the SSC, creation of new composite space physics data/model products, definition of science user requirements for SSDOO systems and other NSSDC data and information systems, and science-expert support for other efforts such as IACG and SPDS as appropriate; 3. to carry out selected archival research and mission planning activities, including publication of results; and 4. to provide logistics support as directed for working meetings related to SPDS, including travel reimbursement.

SIGNIFICANT EVENTS:

1. DIONAS INGEST:

   a. ISIS: Routine ingest continued.

   b. SAMPEX: Routine ingest of the four SAMPEX data sets continued. The two CDF versions of them were ingested into CDAWeb.

   c. Wind: The CDFs of Wind/Waves radio bursts continue to be ingested into CDAWeb. Further ingest into NSSDCFTP or DLT of the PS files, GIF files and the original IDL-saved RAD1,RAD2, and TNR files are still on hold.

   d. Task staff reviewed the transfer database entries for heliospheric spacecraft and made changes for several destination path directories on NSSDCFTP. Other changes were made after Ulysses two-digit year data had been moved, so that the four-digit year data can be moved, for the same data sets.

   e. Updates were made to all files in nssdcftp/raid/ftp/miscellaneous/orbits/ and in the corresponding VMS ftp site, [ACTIVE].

2. OTHER DATA INGEST:

   a. ACE: The Level 1 CD data set was updated for March to April 2002.

   b. Auroral Data: Previously-received data files from S. Silverman of the data set "Auroral notations from United States Climatology data" from 1914 to 1948 were entered into the NSSDC information system, and were put onto nssdcftp, along with their readme files. The data files were re-formatted as text with line breaks, for universal readability. They were also made visible via the Space Physics Web page. In addition, ten new files (about 3 MB) were received on diskettes, and were similarly entered into the information system and into

nssdcftp as a second new data set -- Auroral notes from Canadian Monthly Weather Review" from 1880 to 1928. The new data sets are GE-11E and GE-11F, or SPIO-00373 and -00377, respectively. They currently consist of 28 data files plus readme files. Although most of the data files were provided on diskettes, the scanner and OCR were used to provide digital text versions of several pages of material and contract cover letters and quarterly reports. A few of these pages still remain to be finished next month.

c. DE: Readme files were prepared for all 9 DE-2 data directories on nssdcftp.

d. Explorer 32: The revised version of the ion mass spectrometer data was loaded onto nssdcftp and the readmes were updated accordingly.

e. Helios: Work continued in generating CDFs. The data records were not in time order. It was decided to put them into monotonic order and then look at plots to see if they look okay.

f. IRM: Much effort was spent in creating and examining the ASCII version of the AMPTE-IRM 5-s data. The net result is that only the magnetic field data and the plasma parameters will be extracted from the IRM binary files for DIONAS ingest. There are very few channels of the Plasma Wave data, and archiving an ASCII version will be done at a low priority. The energetic particle data, SULEICA, from the IRM 5-sec resolution tapes will not be archived. But the current 27-s SULEICA (ASCII) data on CDROM will be moved to ftp and DLT. The software to convert the entire IRM file to ASCII and to select the magnetic field and plasma data were passed on to H. Leckner, who will initiate the routine production of the files for NSSDCFTP and DLT. The GSE coordinates of IRM (extracted as 1-min values from SSC) will be added to the magnetic field and plasma data set.

g. ISEE-1: A list of selected parameters and their descriptions was provided by R. Fitzenreiter for the data set 1977-102A-02E, which was received long ago on a set of 42 CD-ROMS, but was not publicly useable because of a lack of documentation. Fitzenreiter now wants to retain only the selected parameters in a new CDF to be made public. Using the new descriptive material, generation of a new master CDF was begun, using SKTEditor. The variable Epoch will be added so that these data may be utilized in CDAWeb. After approval of the master, NSSDC will make the new CDF data set from the old set of CD-ROMs.

h. ISIS 2 Topside-sounder: In July, 28 station-years (from four stations) of electron density profiles from the Topist program were added to the nssdcftp site.

i. Polar: A CDF was received from polar: set po_k1_tim. When tested, only 2 of the 4 variable were able to be plotted. Work continues to diagnose the problem.

j. TIROS: Continued to received shipments of TIROS data thru istp-events; this data was moved to CDAWeb for availability. Working with provider to identify data received and any problems with the data.

k. Ulysses: Ephemeris and gamma-ray data sets were updated through March and April 2002, respectively. Solar wind data updates were carried out for April and May 2001.

l. Wind: The wi_h0_swe master CDF was regenerated so that v02 CDFs could be created by Fitzenreiter, with corrected data times at day ends. The flow of corrected CDFs from Fitzenreiter began.

3. NSSDC Archive Plan: Task staff reviewed the previous plan and provided estimates for the current extension of the plan through 2005.

4. ISIS-1 and -2 Support:

a. A staff programmer met with ISIS personnel about the ISIS2 search pages. The software had to be moved off of bolero and onto lewes; this was accomplished. They have requested that a new similar web page be created for ISIS1.

b. The status of ISIS data processing and related systems was discussed in a joint meeting of ISIS project and NSSDC personnel. A special focus was the improvements in frequency marker identification implemented for ISIS-1. If this could be also implemented for ISIS-2 in pre-TOPIST processing the success rate of TOPIST-generated electron density profiles would greatly improve.

c. Final attempts were made to recover missing ISIS2 binary files; still there were approximately 2000 files unable to be recovered from the missing platters and another 1000 that still could not be classified. It was decided to go with what we had. Software was written to read the CDFs that were classified as bad and delete them from CDAWeb. This list of bad CDFs was provided to the operations staff and they will be marked as deleted from nssdcftp.

d. Software was then written to regenerate all the ISIS CDFs that were missing from nssdcftp and CDAWeb because of makecdf/multiple-station problem. It was decided that we would be able to regenerate 1000 CDFs a day; there is a total of 32250 CDFs that need to be regenerated. The complete list of binaries was subsetted into groups of 100 to be able to keep track of any problems that might occur. Ten runs of 100 will be made daily. The process will be for each run:

1) Find the next group of 100 binaries that needs to be processed.
2) Retrieve the binary via ftp from nssdcftp to rumba
3) run makecdf to create a new CDF.
4) Once completed making all 100 CDFs, compress them.
5) Verification
a) Verify that the correct number of CDFs were created (100)
b) make sure all CDFs had the correct name.
If (verification successful) {
6) copy CDFs to a directory for ingest into CDAWeb
7) store another copy at another directory
8) FTP all CDFs to ndadsb for ingest into dionas}
else {
6) Stop and find the problem}

5. Maintenance of NSSDC Information Databases:

a. The TRF population process continued, with circulation of the (delayed) monthly AGU journal issues. Various other documents were also keyworded by staff scientists.

b. The information for the soon-to-be-launched Coriolis (DoD) mission and its two experimental packages (WindSat and SMEI) were drafted. They will soon be submitted for entry. The AFRL have reported that SMEI data will be archived at NSSDC and elsewhere.

c. It was verified for N. James that no extant images in the space physics supplemental files were lacking in "alt" tags (required for section 508 compliance).

d. A staff scientist met with B. Brown and demonstrated the use of the Perl script to make an entry into the transfer database.

e. Numerous new entries and updates were added to the s/c, experiments, and data sets database.

6. Ephemeris information was created and updated into the SSC's UNIX data base for 32 spacecraft. Files for five spacecraft were updated for the [ACTIVE.IACG.ELEMENTS] directory.

7. The draft and final versions of SPX 583 were made available via WWW and FTP. SPX 584 was drafted and loaded online. It carries stories on eight launches. Eight WDC SI announcements regarding the launch and assignment of IDs to eight missions were sent by e-mail and posted to the Usenet News. The WWAS contacted the Iridium company to ascertain the matched names (Iridium 97 and 98) for the two spacecraft listed as just Payload-A and Payload-B by USSPACECOM; response was prompt. Two CCSDS IDs were assigned (for ESA s/c).

8. Other SSC operations

a. The distribution list for the SPACEWARN Bulletin announcements was cleaned up, deleting several dozen obsolete addresses.

b. David Botler (Canada) who is the acting Director of ISES had an hour-long session with the WWAS office and J. King. He was provided details of the daily and monthly chores at the WWAS. Also, a longer than usual entry in SPX-584 paragraphing each experiment is tailored for easy dovetail to NMC.

c. The source code for computing the distance of a spacecraft from the Bow Shock had been rewritten about four years ago and has been operational since. But it had a surfeit of comment lines, many obsolete and confusing. The source code was cleaned up about a year ago, but it entered the SSC library only this month.

d. Another problem in the SSC was being revived after a long dormancy. The SSC carries fixed-Kp based Tsyganenko B-field models. Some years ago, the SPOF had injected an addition: to add an option that will enable the "observed Kp" to be invoked. It had never worked in that manner. The development staff is addressing it, either to fix it or delete that option.

e. The usual one-year long permission to access the restricted database in NORAD for the DMSP 2-line elements expires on 2 July. As in the past, there may be a hiatus in accessing them for about a month until the renewal is okayed.

9. MAINTENANCE AND UPDATING ON THE VARIOUS WWW PAGES:

a. Algorithms and Models on WEB:
1. Updated solar and geomagnetic indices for MSIS model, to January 2002
2. The solar and magnetic indices files for IRI were updated and IRI users were informed through the IRI electronic mailer.
3. A C-code version of the NRLMSISE00 model was loaded onto the nssdcftp site. Several internal links between nssdcftp/models and the models Web interfaces were established.

```
  Accesses for this month:
CGM ..................  474
IRI model ............12641
MSIS model ........... 1055
IGRF model ...........  702
TRAP particle model ....  84
T89 model ............  127
```

```
T96 model ..............  874
Heliospheric Ephemerides  522
IMP-8 daily position ...    7
```

b. COHOWEB and OMNIWEB systems (data and software)
1. Updated COHOWEB with new Ulysses plasma data up to April 2001.

2. Finished redesign/rebuild of new OMNIWeb interface home pages, with the help of a summer student.

```
Accesses for OMNIWEB: plots/list/scatter:  520 / 302 / 48 = 870
Accesses for COHOWEB: plots/list:  161 / 15 = 176
```

c. ATMOWEB system and FTPHelper (graphical browsing & retrieve FTP data) Accesses for FTPBrowsing this month (plotting/listing): 56 / 13 = 69 Accesses for ATMOWeb this month (plotting/listing): 26 / 22 = 48

d. FTP site (System software, data ingest, creation of CD-Rs) 1. Updated merged COHO files with new Ulysses plasma data up to April 2001.

e. Cosmic and Heliospheric pages and services

f. Geomagnetic and Magnetospheric Models through network

g. Space Physics home page
1. Major redesign of the set of main space physics home pages was begun, with the help of a summer student.

h. JSPAG home page

10. Meetings, Presentations, and Publications

a. Task scientist attended the Eurojove meeting in Lisbon, Portugal.

b. Task staff suggested to E. C. Sittler (Code 692) and J. L. Green that they jointly consider SSDOO support for Titan Orbiter Aerover Mission (TOAM) data processing and educational outreach activity on the IMAGE model for Sittler's upcoming TOAM proposal this fall to NASA's New Frontiers program.

c. The paper "Comprehensive validation of the STROM response in IRI2000" by Araujo-Pradere, Fuller-Rowell, and Bilitza was submitted to JGR.

d. The summary of the panel discussion about ionospheric models during the Ionospheric Effects Symposium (May 2002) was reviewed and comments sent to A. Coster (MIT).

e. The schedule for the URSI session on "Ionospheric Models with Data Assimilation" (D. Bilitza, convenor) was finalized. The meeting will be held this August in Maastricht, The Netherlands.

f. A draft of the schedule of talks was prepared for the session on "Progress in Ionospheric Modelling" (D. Bilitza, Main Scientific Organizer) during the World Space Congress in Houston, Texas (October 2002).

g. After extensive modifications, a list of NASA-involved Space Physics missions was returned to J. Green, to be used in a NASA publication.

REQUEST HIGHLIGHTS:

a. Responses were provided for fifteen queries/comments related to science data, SSC operations, CCSDS task and SPX/WWAS undertakings.

b. Ten users were assisted with requests regarding ITM models and data:

c. Staff responded to a requester by telling him to use CDAWeb to access the IMF data that he wanted for the World Days April 15-18, 2002.

d. A request was received for information on s/c anomalous behavior and various other errors in s/c and experiments. He was told that we don't know of a list of "other" errors, but we did provide contacts to obtain information on-orbit spacecraft problems (such as un-commanded mode changes). Requester is a summer intern associated with code 400.

ACTIVITY LOG:

The NSSDC models sites on anonymous ftp and on the Web continue to be very popular:

	ftp						WWW					
2001	RAID	Model	atm	geom	ion	rad	solar	CGM	IRI	MSIS	IGRF	TRAP	hpage
Nov	49425	4175	854	627	2076	260	202	977	2333	13066	612	366	66026
Dec	36022	3736	701	613	1874	257	175	6485	1001	3599	304	125	61423
Jan02	154622	4926	968	819	2377	324	273	1505	3399	8270	454	244	69610
Feb	116199	7092	1078	659	3651	619	525	1106	2322	41633	475	621	71078
Mar	164875	10177	1869	1462	4682	640	740	717	1659	5257	528	161	73074
Apr	245162	6863	1134	884	3665	353	319	899	2220	1162	1266	122	74803
May	275487	4426	754	537	2208	305	261	1050	8238	944	1346	93	76584
Jun								47412641		1055	702	84	78218

The last month showed a heavy IRI usage with more than 12,000 accesses to the IRIWeb interface.

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----- ISIS -----------

Month	Files	GBy	Total	WWW	I	AE	Aer	DE	Exp	Hin	I/A	OGO	SM	SNOE
Oct	3,485	2.0	516.5	5178	I									
Nov				5339	I	886	12	1389	5	9	16	6		48
Dec					I	18	7	61	6	41	64	1		1937
Jan02	26,410	15.1	531.6	5640	I	1396	4	3154	11	44	13	47	379	29035
Feb	10,342	6.1	537.7	5736	I	25	5	371	3	22	836	8	29	4176
Mar	20,492	12.0	549.7	5917	I	179	18	48	99	83	78	27	17	14263
Apr	17,460	9.2	558.9	6057	I	50		215	15	5	22	1	5	16365
May	19,126	15.4	574.3	6257	I	52	9	271K	34	30	15	19	213	2
Jun	16,552	9.5	583.8	6451	I		2	1						

WWW file and plot accesses during May 2002 (and the yearly totals) for interplanetary COHO-related data from COHOWeb, CDAWeb, and NSSDCFTP:
Deep Space (Ulysses, Voyager, Pioneer, etc.): 16,633 {2002 Total: 24,700}
Geospace (IMP-8, Prognoz, ACE, WIND, SOHO): 19,340 {2002 Total: 142,149}
(Figures for June not yet available.)

Task Assignment 99-301-00
June 2002

COMPUTER SYSTEMS MANAGEMENT TASK
GSFC ATR - C. Barrett
Raytheon ITSS Task Leader - J. Jacobi
Raytheon ITSS Group Manage

TASK OBJECTIVE: The objectives of this task are to provide systems analysis and technical support to the operational computer activities of the NSSDC; to maintain existing hardware and system-level software to ensure the optimal performance and utilization of its resources and connectivity to its computing sites; to integrate new hardware and system-level software into existing systems to achieve upgraded capabilities and state-of-the-art facilities; to administer specialized software such as data base and optical disk management systems; and to provide users with the necessary documentation, training, and assistance so that NCF resources are fully utilized.

SIGNIFICANT EVENTS:

Systems staff performed the following, notable tasks during June 2002:

- Staff replaced failed disk drive on SGI system tarantella.
- Staff upgraded SGI system messier operating system to latest version of IRIX.
- Staff removed old, unused accounts from various systems.
- Staff created computer accounts for Summer students/interns.
- Staff setup new SUN SunFire 280R server to replace system wharfrat.
- Staff installed 50GB disk on system rpi for IMAGE project additional work space.

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Task Assignment 99-302-00
June 2002

SYSTEMS NETWORKING AND SMALL SYSTEMS
GSFC ATR - G. Goucher
Raytheon ITSS Task Leader - R. Dunlap
Raytheon ITSS Group Manager

TASK OBJECTIVE: The objective of this task is to provide network engineering support to Code 600.

SIGNIFICANT EVENTS:

- Staff installed a switch for the Visualization lab to improve communication for a MAC server farm.

- Staff checked the battery status of UPS in the telecomm closets and noted which ones CNE will replace.

- Staff revised the access lists on the building 28 ROSAT router and building 26 router to allow access from outside to specific systems and to block services and ports at the router level as required by the users and the COTR.

- Staff continues work to develop the Code 630 Web-based equipment data base.

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Task Assignment 99-303-00
June 2002

NSSDC COMMON DATA FORMAT (CDF)
GSFC ATR - D. Han
Raytheon ITSS Task Leader - M. Liu
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The objectives of this task are to carry out computer science research, develop computer software and provide user support for the NSSDC Common Data Format (CDF).

SIGNIFICANT EVENTS:

1. A special request to enhance one of the CDF tool programs to allow user provided tolerance values being used while comparing CDF data is being implemented. With this new option, identical floating data with slight different data representation on different platforms can be compared equally.

2. Twelve user requests/questions were received this month.

CONCERNS AND PROBLEM AREAS:

1. The GZIP compression/decompression option is turned off for 16-bit DOS/Windows 3.x due to its memory constraint.

2. A unusual problem occurs with the older Microsoft C 7.00 compiler in one of the EPOCH parsing routines on DOS/Windows 3.x. It occurs while using the floating point functions and type casting. It is suspected that the Microsoft executables may be getting too large and will require memory overlaying.

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Task Assignment 99-304-00
June 2002

PLES
GSFC ATR - N. James
Raytheon ITSS Task Leader - Dr. D. Williams
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The objectives of this task are to maintain data bases and metadata (NMC, WWW) for planetary, Earth sciences, and selected astrophysics data (HEASARC, EUVE, HST), provide request support and coordinate updates of user interfaces, coordinate WWW activities, support internal and external data base users, assure data set quality, coordinate planetary data acquisition and Earth science data transition, support educational activities, and coordinate publications.

SIGNIFICANT EVENTS:

- The NSSDC WWW server had a total of 9,557,808 error-free accesses logged for June 2002, a decrease of 32% compared to May 2002.

- Task staff responded to over 200 e-mail queries and phone calls from external users and the Request Office.

- Task member opened four new experiment records for the CONTOUR mission.

- Task personnel opened three new data sets for the NEAR DVD's containing Near-IR Spectrometer data, Magnetometer data, and SPICE files.

- Task staff updated NEO fact sheet to include asteroid 2002 MN.

- Task member eliminated the pricing information for most color print products on the on-line price list at the request of B. Pope (Raytheon ITSS).

- Task personnel created image catalog thumbnail pages to allow easy access to images for each planet.

- Task member was interviewed by Tony Phillips at science@nasa on the Moon Trees.

- Task staff met with J. King (Code 633), the ATR, and a summer intern to discuss possible tasks for the intern.

- Task personnel updated the new and incoming planetary data page.

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Task Assignment 99-305-00
June 2002

NASA SCIENCE OFFICE OF STANDARDS AND TECHNOLOGY (NOST)
GSFC ATR - D. Sawyer
Raytheon ITSS Task Leader - J. Garrett
Raytheon ITSS Group Manager ·

TASK OBJECTIVE: The objective of this task is to maintain and expand the NOST so that it can effectively respond to the standards needs of the NSSDC community.

SIGNIFICANT EVENTS:

NOST Archiving Tools Suite - Staff has

- Continued working on the Multifile Package Group Analyzer (MPGA) focusing on the data file formats and attributes, and their functions throughout the utility's lifecycle.
- Continued implementing the MPGA's management level functionality
- Continued analyzing the environment to derive requirements for the entire system, including the MPGA, Splitter, Extractor, DIOnAS, and Operations roles.

ISO Data Archiving - Staff has

- The OAIS Reference Model was approved as an ISO Standard. A new version of the document with approved updates is being prepared by the Technical Editor of the document. This updated information has been noted on the ISO Data Archiving Web Site at: http://ssdoo.gsfc.nasa.gov/nost/isoas/.

CCSDS On-Line Information System - Staff has

- Updated schedule and logistics information for the Fall set of CCSDS meetings.
- Working with current contract holder to maintain the current CCSDS.ORG web site and transition to the new web site designed by the new contractor.
- Continued testing of Docushare. Although I've set up about 50 new accounts for Management Representatives and Panel 2 for testing purposes, there has been minimal testing activity.
- Posted the following new documents to the web site.
    - CCSDS 502.0-R-2: Orbit Data Messages. Red Book (Draft Standard). Issue 2. June 2002.
    - CCSDS 727.0-P-1.1: CCSDS File Delivery Protocol (CFDP). Pink Sheets (Draft Standard Updates). Issue 1.1. April 2002.
- Monitored the log files for the CCSDS.ORG WWW-server for any indications of problems or security incidents and continued generating the required data to develop monthly statistics.

CCSDS Standards - Staff has

- Participated in GSFC CCSDS Group meeting discussing CCSDS reorganization. We have reviewed various drafts of a GSFC perspective and provided input.
- Participated in a recent GSFC Standards Coordination Group meeting.

- Reviewed an ESA final report document on new CCSDS Control Authority office software set that takes advantage of JAVA and XML techniques.

Goddard Technical Standards Coordination - Staff has

- Participated in a GSFC Technical Standards meeting.
- Updated the web site to detail a number of completed and upcoming GSFC reviews of standards.

STATISTICS: CAOIS: As of 30 June 2002, there were 438 Data Description registration numbers assigned. Of these about 30 of the Data Description registration numbers are reserved for NSSDC use during the Cygnet migration, 45 are reserved for IMAGE ingest, and 26 for ISIS ingest. Data Description Packages for these must be generated.

UPCOMING MILESTONES/EVENTS:

NOST Archiving Tool Suite: Staff will

- Identify XML grouping criteria structure and requirements for analyzing data fields and determining groups and attributes.
- Identify XML list file format and it capabilities.
- Finalize and document MPGA System requirements.
- Begin Coding the MPGA.

ISO Archiving Standards: Staff will

- Update the web site to provide information on new archiving thrusts.

CCSDS XML Group: Staff will

- Continue low level of support for possible CCSDS XML prototype effort.

CCSDS Standards: Staff will

- Comment on new drafts of the CCSDS Concept of Operations, CCSDS reorganization, and NASA CCSDS budgeting priorities.

Goddard Technical Standards Participation: Staff will

- Participate as needed in the GSFC Standards Working Group, the NASA Data System Standards Council and the GSFC Standards Review Boards.
- Continue updates for the web site for GSFC Standards Coordination.

OLIS: Staff will

- Participate in upcoming CCSDS.ORG web site redesign meetings as requested. Develop additional proposals for improving the CCSDS Web site as required.
- Add additional documents to the CCSDS Web site as they become available from the CCSDS editor.

CAOIS: Staff will

- Register new data description packages as they are submitted. Note that Cygnet migration, IMAGE ingest and ISIS ingest descriptions still need to be submitted.

Formats Evolution Process - Staff will

- Updating the FEP Web site if any new material is submitted.

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Responsible Official: *Dr. Joseph H. King, Code 633*
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Task Assignment 99-306-00
June 2002

INFORMATION (METADATA) SYSTEMS DEVELOPMENT AND UPGRADES
GSFC ATR - Dr. J. Thieman
Raytheon ITSS Task Leader -
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The objectives of this task are to define and develop information systems and the interfaces thereto, maintain these systems and interfaces and support the generation of reports therefrom, and recommend and participate in the planning of upgrades to necessary support systems and software as appropriate.

SIGNIFICANT EVENTS:

- A schedule for JIN development activities was delivered.
- The initial JIN design for adding, searching for tape data, and dataset reports was finished.
- The initial development for searching and displaying tape information in JIN was finished.
- Work began on the sign-in sign-out segment of the JIN project.
- A database table which tracks the relationship between media IDs and JEDS dataset IDs was designed for JIN.
- A script and stored procedure to populate above mentioned table was written and executed.
- The events table in the NIMs database, which supports the Space Events servlet, was updated..
- The Task Request system software was copied over to java/decaf and updated in CVS.
- All task personnel completed mandatory security training.
- A task member attended Sun Microsystem's "Java Programming Language" training class.

UPCOMING MILESTONES/EVENTS: Work will continue on JIN.

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Curator: *Natalie Jaquith*

Task Assignment 99-312-00
June 2002

ANALYSIS SUPPORT FOR THE IMAGE MISSION
GSFC ATR - Dr. J. Green
Raytheon ITSS Task Leader - L. Garcia
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The objectives of the Analysis support for the IMAGE Mission task are to maintain and update local copies of the IMAGE software suite, create RPI data analysis software, and to create software to be used in correlative studies between IMAGE detectors and between IMAGE and other missions. This task will also support the synthesis of data and theory in the study of Earth's magnetosphere through creation of unique data products and services. This task will make available appropriate documentation for all of these objectives and will support the IMAGE Science Center Web site.

SIGNIFICANT EVENTS:

- Staff posted press release articles on Web site.
- Staff posted Science Working Group Meeting agenda.
- Staff created West Pacific Geophysics Meeting page.
- Staff posted 21 references, 20 abstracts, and one document to the science publications page.
- Staff updated the link from the IMAGE Science Center to the IMAGE data on the NSSDC FTP site.
- Plots of Web accesses to the IMAGE Science Center and POETRY Web pages for the quarter between early March 2002 and early June 2002 were produced and sent to J. Green.
- Staff installed software developed by IMAGE-FUV team and installed dynamically loadable module (DLM) developed at LANL for use by IDL. Fuview is an IDL program now running on rpi (Solaris machine). Fuview allows for the analysis of IMAGE-FUV data.
- Staff moved UDF data from original disk on rpi to new external disk added to rpi. This move allows customer to add many more UDF files to database.
- Staff confirmed that UDF software and IDL programs (fuview and specwidget) will properly read UDF files from the new disk on rpi.
- Staff assisted customer and other members of team in the use of the fuview program and the addition of UDF data.

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Task Assignment 99-313-00
June 2002

COMMUNITY COORDINATED MODELING CENTER
GSFC ATR - Dr. M. Hesse
Raytheon ITSS Task Leader - M. Kuznetsova
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: This task will provide science and software support for Community Coordinated Modeling Center (CCMC). Specific support includes developing and testing of simulation codes for space weather models, performing simulations of realistic space weather events, providing visualization and analysis software, performing comparison of modeling results to satellite measurements, performing research in space plasma physics.

SIGNIFICANT EVENTS:

- Staff redesigned Web submission interface for Runs on Request. The new interface allows much more flexibility for the users and checks input parameters for consistency on the fly.

- Staff installed the database handling software and adapted it to handling the results of Global MHD simulations performed at CCMC.

- Staff modified the Web visualization interface. 3D field line plot option and data listing on 2D uniform grid are added.

- Staff attended GEM meeting at Telluride, Colorado and made three presentations.

- Staff visited CTIP code developers at NOAA, Boulder Colorado, and developed a strategy for making CTIP code available for Runs and Request and for real-time simulations at CCMC.

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Task Assignment 99-315-00
June 2002

Automated Vulnerability Scanning and Data Integration/Reporting System DB Repository and Reporting/Publishing Sub-task
GSFC ATR - R. Schneider
Raytheon ITSS Task Leader - D. Baldridge
Raytheon ITSS Group Manager -

TASK OBJECTIVE: This task will provide automated uploading of ISS scan database files into a central composite database. A user interface for generating vulnerability reports will also be provided.

SIGNIFICANT EVENTS: Work continue to be stopped.

UPCOMING MILESTONES/EVENTS: Waiting for direction from ATR to continue effort.

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Task Assignment 99-316-00
June 2002

Solar Nebula SiO
GSFC ATR - J. Nuth
Raytheon ITSS Task Leader - A. Ali
Raytheon ITSS Group Manager

TASK OBJECTIVE: The objective of this study is to carry out research and analysis of SiO cluster mass distributions from data obtained using the molecular beam apparatus located at Penn State University. This experimental setup produced a unique data set on the cluster distribution of SiO clusters produced by partial condensation following laser evaporation. Future experiments will concentrate on extending these basic experiments to isotopically labeled systems using pure Si[28] and enriched oxygen isotopes. These experiments are highly relevant to the origin of oxygen isotopic anomalies in the early solar nebula and present a very complex analytical problem.

SIGNIFICANT EVENTS:

Staff is currently involved in data analysis of experiments on oxidation of (SiO)n clusters by free O2 molecules. This would permit to understand the mechanism of formation of molecular compositions in the solar nebula during growth of primitive solids.

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Curator: *Natalie Jaquith*
Responsible Official: *Dr. Joseph H. King, Code 633*
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